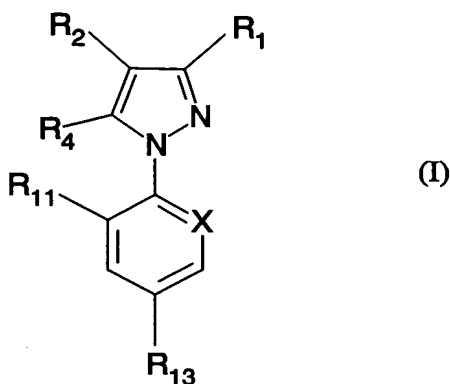


WHAT IS CLAIMED IS:

1. A method for attracting insects, said method comprising offering to said insects for ingestion an effective attractant amount of a compound having the formula:



wherein:

- 15 R₁ is CN or methyl;
 R₂ is -S(O)_nR₃;
 R₃ is alkyl or haloalkyl;
 R₄ is hydrogen, halogen, -NR₅R₆, -S(O)_mR₇, alkyl, haloalkyl, -OR₈ or
 -N=C(R₉)(R₁₀);
- 20 each of R₅ and R₆, which are the same or different, is hydrogen, alkyl,
 haloalkyl, -C(O)alkyl or -S(O)_rCF₃; or R₅ and R₆ together form a divalent lower
 alkylene radical which is optionally interrupted by one or more heteroatoms selected
 from O, S and N;
 R₇ is alkyl or haloalkyl;
- 25 R₈ is alkyl, haloalkyl or hydrogen;
 R₉ is hydrogen or alkyl;
 R₁₀ is phenyl or heteroaryl, each of which is unsubstituted or is substituted
 with one or more substituents selected from the group consisting of hydroxy, halogen,
 -O-alkyl, -S-alkyl, cyano and alkyl;
- 30 each of R₁₁ and R₁₂, which are the same or different, is halogen or hydrogen;
 R₁₃ is halogen, haloalkyl, haloalkoxy, -S(O)_qCF₃ or -SF₅;

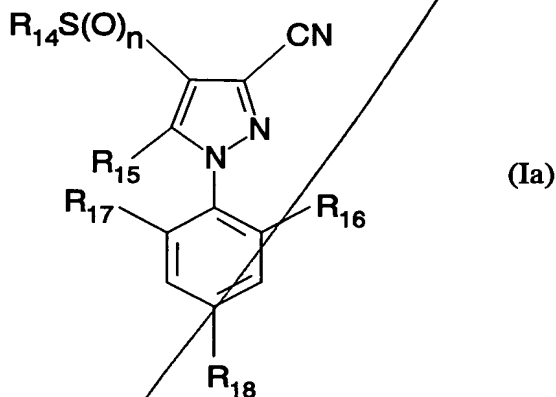
each of m, n, q and r, which are the same or different, is 0, 1 or 2; and
X is nitrogen or C-R₁₂;

provided that when R₁ is methyl, R₃ is haloalkyl, R₄ is NH₂, R₁₁ is Cl, R₁₃
is CF₃, and X is N.

2. A method according to Claim 1, having at least one feature selected
from the group consisting of:

- (a) R₁ is CN;
- (b) R₃ is haloalkyl;
- (c) R₄ is NH₂;
- (d) each of R₁₁ and R₁₂, which are the same or different, is
halogen; and
- (e) R₁₃ is haloalkyl.

3. A method according to Claim 1, wherein the compound of formula (I)
has the formula:



wherein:

R₁₄ is alkyl or haloalkyl;

R₁₅ is alkyl, haloalkyl, amino, alkylamino or dialkylamino;

each of R₁₆ and R₁₇, which are the same or different, is hydrogen or halogen;

R₁₈ is halogen, haloalkyl, haloalkoxy or SF₅; and
n is 0, 1 or 2.

4. A method according to Claim 3, wherein at least one of R₁₆ and R₁₇ is
5 halogen.

5. A method according to Claim 4, wherein each of R₁₆ and R₁₇ is
halogen, R₁₈ is haloalkyl, R₁₄ is lower haloalkyl and R₁₅ is amino.

10 6. A method according to Claim 5, wherein the compound of formula (Ia)
is 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-
trifluoromethylsulfenylpyrazole.

15 ³ 7. A method according to Claim 1, wherein said insects are insects which
are able to enter or inhabit buildings.

⁴ 8. A method according to Claim ³ 7, wherein said compound of formula (I)
is offered to said insects as an alternative food source at a locus which is in or near an
area in which other food is present.

20 ⁵ 9. A method according to Claim ⁴ 8, wherein the food source comprising
said compound of formula (I) is in solid, liquid or gel form.

⁶ 10. A method according to Claim ⁵ 9, wherein said solid, liquid or gel form
25 is a solid, liquid or gel bait.

⁷ 11. A method according to Claim 1, wherein said insects belong to the
family *Blattidae* or *Formicidae*.

30 ⁸ 12. A method according to Claim ⁴ 8, wherein said insects are cockroaches.

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⁹
~~13.~~ A method according to Claim 1, wherein said insects are American cockroaches (*Periplaneta americana*) or German cockroaches (*Blattella germanica*).

¹⁰
~~14.~~ A method according to Claim ⁶~~10~~, wherein said insects are American cockroaches (*Periplaneta americana*) or German cockroaches (*Blattella germanica*).

¹¹
~~15.~~ A method according to Claim ⁴~~8~~, wherein said compound of formula (I) is offered in an amount of from about 0.00001 g to about 20 g per 100 square meters.

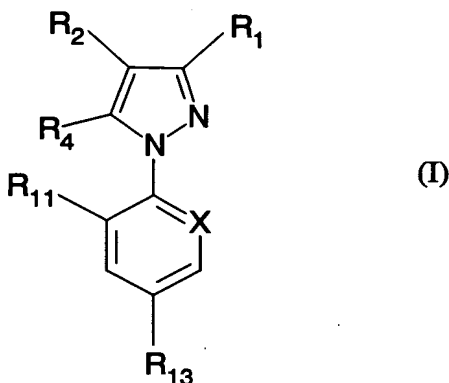
¹²
~~16.~~ A method according to Claim ¹¹~~15~~, wherein said compound of formula (I) is offered in an amount of from about 0.001 g to about 1 g per 100 square meters.

¹³
~~17.~~ A method according to Claim ⁴~~8~~, wherein the food source comprising said compound of formula (I) comprises from about 0.001 to about 15 % w/w of compound of formula (I).

¹⁴
~~18.~~ A method according to Claim ¹³~~17~~, wherein the food source comprising said compound of formula (I) comprises from about 0.1 to about 6 % w/w of compound of formula (I).

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15
19. A method for attracting and killing insects comprising offering to said insects for ingestion a compound having the formula:



wherein:

R₁ is CN or methyl;

15 R₂ is -S(O)_nR₃;

R₃ is alkyl or haloalkyl;

R₄ is hydrogen, halogen, -NR₅R₆, -S(O)_mR₇, alkyl, haloalkyl, -OR₈ or -N=C(R₉)(R₁₀);

each of R₅ and R₆, which are the same or different, is hydrogen, alkyl, haloalkyl, -C(O)alkyl or -S(O)_rCF₃; or R₅ and R₆ together form a divalent lower alkylene radical which is optionally interrupted by one or more heteroatoms selected from O, S and N;

R₇ is alkyl or haloalkyl;

R₈ is alkyl, haloalkyl or hydrogen;

25 R₉ is hydrogen or alkyl;

R₁₀ is phenyl or heteroaryl, each of which is unsubstituted or is substituted with one or more substituents selected from the group consisting of hydroxy, halogen, -O-alkyl, -S-alkyl, cyano and alkyl;

each of R₁₁ and R₁₂, which are the same or different, is halogen or hydrogen;

30 R₁₃ is halogen, haloalkyl, haloalkoxy, -S(O)_qCF₃ or -SF₅;

each of m, n, q and r, which are the same or different, is 0, 1 or 2; and

15

X is nitrogen or C-R₁₂;

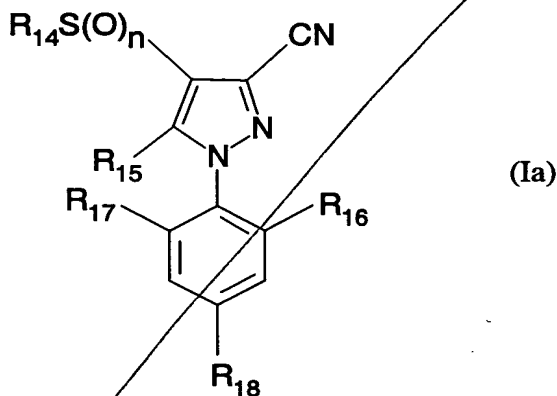
provided that when R₁ is methyl, R₃ is haloalkyl, R₄ is NH₂, R₁₁ is Cl, R₁₃ is CF₃, and X is N;

wherein said compound of formula (I) is offered in an amount which is effective both as an attractant and as an insecticide.

20. ¹⁶ A method according to Claim ¹⁵ ~~19~~, having at least one feature selected from the group consisting of:

- (a) R₁ is CN;
- (b) R₃ is haloalkyl;
- (c) R₄ is NH₂;
- (d) each of R₁₁ and R₁₂, which are the same or different, is halogen; and
- (e) R₁₃ is haloalkyl.

21. A method according to Claim 19, wherein the compound of formula (I) has the formula:



wherein:

R₁₄ is alkyl or haloalkyl;

R₁₅ is alkyl, haloalkyl, amino, alkylamino or dialkylamino;

each of R₁₆ and R₁₇, which are the same or different, is hydrogen or halogen;

R₁₈ is halogen, haloalkyl, haloalkoxy or SF₅; and
n is 0, 1 or 2.

5 22. A method according to Claim 21, wherein at least one of R₁₆ and R₁₇
is halogen.

23. A method according to Claim 22, wherein each of R₁₆ and R₁₇ is
halogen, R₁₈ is haloalkyl, R₁₄ is lower haloalkyl and R₁₅ is amino.

10 24. A method according to Claim 23, wherein the compound of formula
(Ia) is 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-
trifluoromethylsulfinylpyrazole.

15 ¹⁷
~~25~~. A method according to Claim ¹⁵~~19~~, wherein said compound of formula
(I) is offered to said insects as an alternative food source at a locus which is in or
near an area in which other food is offered.

¹⁸
~~26~~. A method according to Claim ¹⁷~~25~~, wherein the food source comprising
said compound of formula (I) is in solid, liquid or gel form.

20 ¹⁹
~~27~~. A method according to Claim ¹⁸~~26~~, wherein said solid, liquid or gel form
is a solid, liquid or gel bait.

²⁰
~~28~~. A method according to Claim ¹⁵~~19~~, wherein said insects belong to the
25 family *Blattidae* or *Formicidae*.

²¹
~~29~~. A method according to Claim ¹⁷~~25~~, wherein said insects are cockroaches.

²²
~~30~~. A method according to Claim ¹⁵~~19~~, wherein said insects are American
30 cockroaches (*Periplaneta americana*) or German cockroaches (*Blattella germanica*).

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²³
~~31.~~ A method according to Claim ¹⁹~~27~~, wherein said insects are American cockroaches (*Periplaneta americana*) or German cockroaches (*Blattella germanica*).

²⁴
~~32.~~ A method according to Claim ¹⁵~~19~~, wherein said compound of formula (I) is offered in combination with a carrier or surface-active agent.

²⁵
~~33.~~ A method according to Claim ¹⁵~~19~~, wherein said compound of formula (I) is offered in combination with another pesticide.

²⁶
~~34.~~ A method according to Claim ¹⁵~~19~~, wherein said compound of formula (I) is offered in an amount of from about 0.00001 g to about 20 g per 100 square meters.

²⁷
~~35.~~ A method according to Claim ²⁶~~34~~, wherein said compound of formula (I) is offered in an amount of from about 0.001 g to about 1 g per 100 square meters.

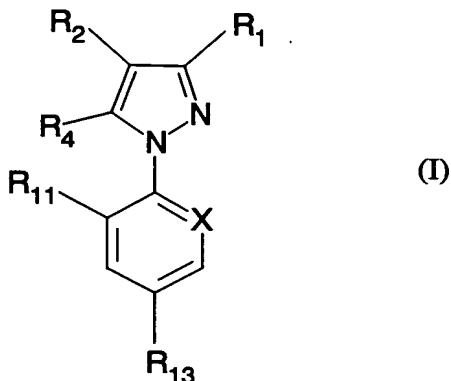
²⁸
~~36.~~ A method according to Claim ¹⁷~~25~~, wherein the food source comprising said compound of formula (I) comprises from about 0.001 to about 15 % w/w of compound of formula (I).

²⁹
~~37.~~ A method according to Claim ²⁸~~36~~, wherein the food source comprising said compound of formula (I) comprises from about 0.1 to about 6 % w/w of compound of formula (I).

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18

30
38. A method for controlling a population of insects at a locus which is in or near a food storage, preparation, serving or eating area, said method comprising offering to said insects as an alternative food source an amount of a compound having the formula:



wherein:

R_1 is CN or methyl;

R_2 is $-S(O)_nR_3$;

R_3 is alkyl or haloalkyl;

R_4 is hydrogen, halogen, $-NR_5R_6$, $-S(O)_mR_7$, alkyl, haloalkyl, $-OR_8$ or

$-N=C(R_9)(R_{10})$;

each of R_5 and R_6 , which are the same or different, is hydrogen, alkyl, haloalkyl, $-C(O)alkyl$ or $-S(O)_rCF_3$; or R_5 and R_6 together form a divalent lower alkylene radical which is optionally interrupted by one or more heteroatoms selected from O, S and N;

R_7 is alkyl or haloalkyl;

R_8 is alkyl, haloalkyl or hydrogen;

R_9 is hydrogen or alkyl;

R_{10} is phenyl or heteroaryl, each of which is unsubstituted or is substituted with one or more substituents selected from the group consisting of hydroxy, halogen,

$-O-alkyl$, $-S-alkyl$, cyano and alkyl;

each of R_{11} and R_{12} , which are the same or different, is halogen or hydrogen;

19

R_{13} is halogen, haloalkyl, haloalkoxy, $-S(O)_qCF_3$ or $-SF_5$;

each of m , n , q and r , which are the same or different, is 0, 1 or 2; and

X is nitrogen or $C-R_{12}$;

provided that when R_1 is methyl, R_3 is haloalkyl, R_4 is NH_2 , R_{11} is Cl , R_{13}

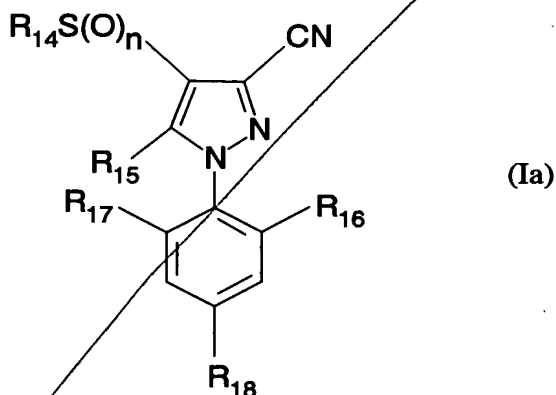
is CF_3 , and X is N ;

which is effective both as an attractant and as an insecticide.

³¹ 39. A method according to Claim ³⁰ 38, having at least one feature selected from the group consisting of:

- 10 (a) R_1 is CN ;
- (b) R_3 is haloalkyl;
- (c) R_4 is NH_2 ;
- (d) each of R_{11} and R_{12} , which are the same or different, is
- halogen; and
- 15 (e) R_{13} is haloalkyl.

40. A method according to Claim 39, wherein the compound of formula (I) has the formula:



wherein:

R_{14} is alkyl or haloalkyl;

R_{15} is alkyl, haloalkyl, amino, alkylamino or dialkylamino;

each of R₁₆ and R₁₇, which are the same or different, is hydrogen or halogen; R₁₈ is halogen, haloalkyl, haloalkoxy or SF₅; and n is 0, 1 or 2.

5 41. A method according to Claim 40, wherein at least one of R₁₆ and R₁₇ is halogen.

 42. A method according to Claim 41, wherein each of R₁₆ and R₁₇ is halogen, R₁₈ is haloalkyl, R₁₄ is lower haloalkyl and R₁₅ is amino.

10 43. A method according to Claim 42, wherein the compound of formula (Ia) is 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-trifluoromethylsulfinylpyrazole.

15 ³²
~~44.~~ A method according to Claim ³⁰~~38~~, wherein the food source comprising said compound of formula (I) is in solid form.

³³
~~45.~~ A method according to Claim ³²~~44~~, wherein said solid form is a solid bait.

20 ³⁴
~~46.~~ A method according to Claim ³⁰~~38~~, wherein said insects are cockroaches.

³⁵
~~47.~~ A method according to Claim ³⁰~~38~~, wherein said compound of formula (I) is offered in an amount of from about 0.00001 g to about 20 g per 100 square
25 meters.

³⁶
~~48.~~ A method according to Claim ³⁵~~47~~, wherein said compound of formula (I) is offered in an amount of from about 0.001 g to about 1 g per 100 square meters.

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